



Institute of Development Studies
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2nd December 1996

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INDIA

Dear Mrs Ramachandran,

Here is my paper for the Congress. It should reach you well before the deadline of 15 December. Please be in touch if you have any queries.

We are sending it both in hard copy and on disc as requested.

Yours sincerely

RR Robert Chambers

Enc: Paper
Disc (in word for windows 2)

Behaviour and Attitudes: a Missing Link in Agricultural Science?

"It is not that we should simply seek new and better ways for managing society, the economy and the world. The point is that we should fundamentally change how we behave"

Vaclav Havel 1992

The thesis of this paper is that "our" (professionals', scientists', outsiders') behaviour and attitudes are a key missing link for good agricultural science; and that unless they are confronted and transformed, as part of a new definition of professionalism, the agriculture of small farmers will not achieve its potential, and the needs of many of the food-insecure of the world will not be met.

The Context

For purposes of broad analysis, the agricultural systems of the world have been classified into three types: industrial, green revolution, and CDR (complex, diverse and risk-prone)¹. A recent estimate (Pretty 1995:2), gives the numbers of people supported by industrial agriculture as some 1.2 billion, by green revolution agriculture some 2.3 - 2.6 billion, and by CDR agriculture some 1.9 - 2.2 billion.

For three reasons, complex and diverse agriculture is now a priority. First, and most important, CDR agriculture supports a majority of the poorest and most vulnerable people in the world, a majority of them females. Second, there is much evidence (see e.g. Pretty 1995, Pretty et al 1996) that CDR agriculture often has a potential for two-fold or three-fold increases in production with little or no use of external inputs. Third, some industrial and much green revolution agriculture is shifting, and can be expected to continue to shift, towards systems which are more complex and diverse. with more enterprises, activities and linkages internal to the farm. These changes can be expected as, variously, to the extents to which subsidies are withdrawn, labour and management become more available, biological pest management and organic manure substitute for pesticides and artificial fertilisers, and farming intensifies.

The question then is how agricultural science and scientists can best serve an agriculture which combines increasing complexity and diversity, and especially that of poor CDR farmers.

¹ For an elaboration of this distinction see the Introduction in Chambers, Pacey and Thrupp eds (1989) Farmer First.

Whose Reality Counts?

Scientists and CDR farmers have different mindsets and realities. Some contrasts of realities (ways of thinking, experiences, values, methods working environments etc) tend to be as in table 1.

Table 1: Contrasting Tendencies in the Realities and Mindsets of Scientists and Resource-poor, CDR Farmers

<u>Scientists' Realities</u>	<u>CDR Farmers' Realities</u>
universal	local
reductionist	complex
uniform	diverse
stable	dynamic
controlled	uncontrolled

The strategies of CDR farmers differ from those of industrial and green revolution farmers. The latter often seek to standardise, simplify, control, and to minimise management, substituting capital for labour. Their reality is closer to that of scientists and their research stations. In contrast, CDR farmers often seek to reduce risk and increase food and income by complicating, diversifying and intensifying labour use in their farming systems, adding to their enterprises and maximising management. Many are skilful engineers (Premkumar 1994): they build bunds, confine, control and concentrate rainwater flows, flatten fields, and shape land in a myriad of ways. They make, manage and exploit spatial niches such as silt deposition fields, termite mounds, animal pens, and other pockets of fertility which contain, capture and concentrate nutrients, soil and water (Wilken 1987; Scoones 1995; Carter and Murwira 1995; Reij et al 1996). They multiply the internal links and flows within their farming systems, through creating and exploiting microenvironments, aquaculture, composting, cut-and-carry for stallfed livestock, cover crops, manuring, multiple and serial cropping, agroforestry, home gardening, and the use of kitchen waste; and they bring in resources such as fodder, fuel, fibre, nutrients, soil and water from outside the boundary limits of their farms.

For this strategy they need choices of diverse materials, resources and ideas. But in much normal agricultural science, scientists seek to increase productivity and diminish risk through simplifying, standardising and controlling the environment. Scientists then pass on to extensionists packages of standard practices. What CDR farmers often want, though, is not packages but baskets of diverse choices among which they can pick and choose to exploit local micro variations and microenvironments, to buffer their systems against risk, and to help them adapt to dynamic and unpredictable conditions.

The issue then is whose reality counts? In the traditional transfer of technology (TOT) mode, it is the reality of the scientists. It is their reality which is to be transferred. In the words of Paulo Freire (1974:95):

"It appears that the act of extension.... means that those carrying it out need to go to "another part of the world" to "normalize it", according to their way of viewing reality: to make it resemble their world" .

Put crudely, the farm is to be simplified and standardised and made to resemble the research station. To serve CDR agriculture requires reversals: for scientists to work more closely with farmers in their conditions and for the research station to generate diversity, to provide farmers with wider ranges of choices of enterprise, variety, practices and principles to try out.

The questions then are not just Whose reality counts? but also:

Whose knowledge counts?
Whose preferences and criteria?
Whose needs?
Whose appraisal?
Whose planning and implementation?
Whose experimentation?
Whose monitoring and evaluation?

and the answers shift in their balance towards those of farmers.

Capabilities: "They Can Do It"

Many scientists may accept the thrust of this argument but consider farmers incapable. There are, though, three bodies of evidence which suggest that farmers, especially CDR farmers, have greater capabilities and knowledge than had been believed by most professionals.

First, through insights from farming systems research, the complexity and diversity of farming systems, especially in the tropics, is now better understood and appreciated, and the skill and knowledge needed for their management.

Second, new methods have shown farmers' capabilities for complex analysis to be greater than had been supposed. Methods² such as participatory farm and resource mapping, matrix scoring and ranking (Drinkwater 1993; Manoharan et al 1993); seasonal calendars (Gill 1991), nutrient flow diagramming (Lightfoot, Prein and Lopez 1994), and trend and change diagramming have often astonished scientists, and farmers themselves, with the detail, complexity and utility of information, insight and assessment they reveal.

Third, farmers' knowledge is now acknowledged to have the edge over that of scientists in domains which concern their own priorities, livelihood strategies, practices and priorities, local conditions and whatever requires continuous observation.

2 For more complete listings and detailed information see the IDS PRA Topic Packs on Methods available from various national networks, and from PRA, Institute of Development Studies, University of Sussex, Brighton BN1 9RE, UK

Power, Dominance and Error

Unfortunately, education and training condition students and professionals to believe that their knowledge is superior in domains where it is not.

It is a commonplace that professionals often behave in a superior manner with farmers, lecturing, criticising, instructing, being impatient and in a hurry, and neither listening well nor showing respect or interest.

This prevents learning and leads to error. Those who are dominant and powerful (or "uppers") tend to be deceived by those who are subordinate and weak (or "lowers"). The assumption that "we know" and "they are ignorant" prevents "us" from learning. Our own beliefs are then self-validating. Psychoanalysts may be more powerful in relation to their clients than agricultural scientists with theirs; all the same, it is sobering to reflect that for three generations since Freud psychoanalysts have sustained the wrong belief that incest was a fantasy and imposed that reality on the victims, who knew otherwise. Interpersonal power and dominance disable, deceiving the powerful and preventing them from learning. Power deceives.

The question then is to what extent this applies in the relations between scientists and extensionists on the one hand, and farmers on the other. A warning comes from recent meticulous research in the forest-savannah transition zone in Guinea. There, Fairhead and Leach (1996a and b) have found that all professionals have believed that local people destroy the forest; and that face-to-face with visitors to their villages, local people confirm this though they know it is untrue. They reflect back the false reality of those who are influential. They are prudent: they know what their visitors believe, want benefits from them, and tell them what they know they expect. Moreover, when the benefits are subsidies, farmers mislead because, rationally, they will adopt practices which are not sustainable without the subsidies (Kerr et al 1996). Is it quite common, that similarly scientists and extensionists are heard with apparent respect, and the realities they seek to transfer or impose are reflected back to them in polite but misleading agreement?

The behaviour and attitudes of the visitor are the key. Dominance, age, charisma, and power all make it difficult to learn. Distinguished old men are the most disabled because of the respect with which they are treated. I have been on field visits with a renowned extensionist and observed the eagerness with which farmers sought to find out what he wanted them to say, and then said it to him, reflecting back to him his own version of reality. A single farmer who, in a meeting, protested other priorities, was told to sit down and shut up. It was through the exercise of power that the distinguished extensionist denied himself the opportunity to learn the farmer's reality.

Interpersonal behaviour and attitudes are, then, a key to good learning by scientists and extensionists from and with farmers.

Participatory Research

The importance of behaviour and attitudes is reinforced by what is required for good collaboration in research between farmers and scientists. In the abstract of his inaugural address to this Congress, Dr M.S. Swaminathan has written that for sustainable food security:

" A major challenge will be in integrating the different components of sustainable crop production into synergetic production systems. For this purpose, research on the development of integrated, intensive farming systems will have to be undertaken in the fields of farmers. Sustainable agricultural practices help to substitute market purchased chemical inputs with knowledge and farm grown inputs. They are thus best developed through participatory research with farm families."

(Swaminathan 1996)

Many scientists have been pioneering participatory research. To take seed-breeding as but one example, D.M. Maurya's early (1988) pioneering work on selection of varieties by farmers as part of the breeding process has been followed by further involvement of farmers with scientists at every stage except F1, including choices for the original crosses (Witcombe et al 1996).

Participatory research with farm families implies mutual learning. Here is a description of what happens when farmers themselves have made diagrams of farm resource flows:

"Farmer-scientist discussions over bioresource flow models not only result in farmers learning new ways to recycle materials, but also inform the extension services, both government and non-government, what kinds of inputs farmers need to develop ecologically sustainable farming systems. Similarly, researchers learn what new experiments are needed from them."

(Lightfoot, Prein and Lopez 1994: 23)

Participatory research with farm families brings scientists and farmers together. How they then relate and interact, how they present and perceive one another, what sort of people they are as human beings - these are then critical for success. The boundaries of what constitutes good science and good scientific method widen to include not just what is done in the laboratory or on the research station, but also what is done with farmers and on farmers' fields. If agricultural science is to serve its local stakeholders well, then this social dimension becomes a key part of good agricultural science.

A scanning of some of the literature on agricultural extension, farmer participatory research (FPR) and participatory technology development (PTD) however, reveals little on how scientists actually *behave* when they interact with farmers. Exceptions include Robert Rhoades' classic (1982) Art of the Informal Agricultural Survey and Jacqueline Ashby's seminal video The IPRA Method (CIAT ?1989). But elsewhere I have found little³. A prestigious and popular textbook on agricultural extension (van den Ban and Hawkins 1988) concerns itself mainly with changes in attitudes and behaviour among farmers and hardly at all among extensionists (see e.g. pp 46, 134, 154-6). This reflects the interpretation that would have been put on the title to this paper three decades ago. Then it would have been the behaviour and attitudes of farmers, not those of scientists, that was the missing link. Nor are scientists' behaviour and attitudes prominent in the "Farmer First" literature (see e.g. Chambers et al 1989; Scoones and Thompson 1994). Other works directly on farmer participation (e.g. Farrington and Martin 1988; Okali et al 1994) cover procedures, case studies, interfaces and interactions but do not stress how scientists and other outsiders behave face-to-face with farmers, let alone what sort of people scientists are as people or how they relate to others.

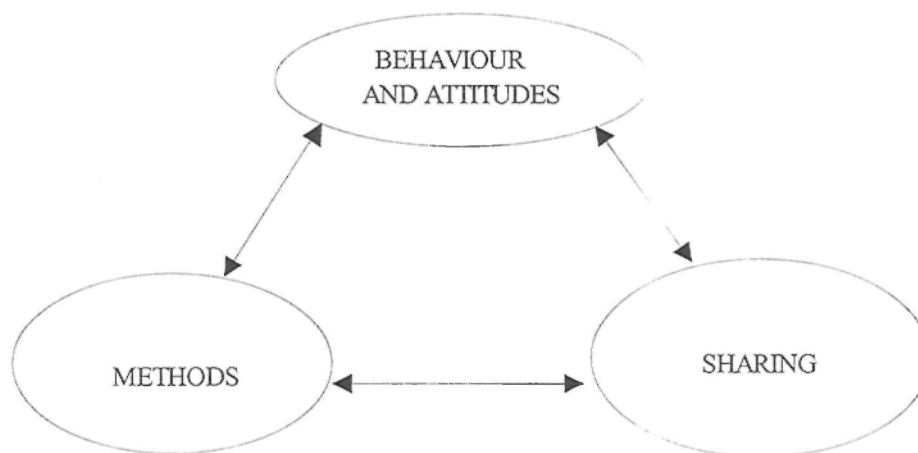
3 There must be much more than I have found. I shall be grateful to any reader who can draw other sources to my attention.

Yet for good farmer participatory research, the behaviour and attitudes of scientists need to ensure that it is the realities and priorities of farmers that come first. This will be more important the further the research is along Biggs'(1989) continuum of modes of participatory research, from contract to consultative to collaborative to collegial. For what is required is that scientists step down and hand over much of the initiative and decision-making to farmers.

Good Behaviour and Attitudes

Appropriate behaviour and attitudes do not always come easily. For some it is second nature. For many, a superiority complex resulting from education and training has to be unlearned. The practice of participatory rural appraisal (PRA) (Mascarenhas et al 1991; RRA and PLA Notes 1988 -) has identified pillars and linkages as in figure 1:

Figure 1 : The Three Pillars of Participatory Rural Appraisal



For analysis by local people, the behaviour and attitudes of the facilitators have been found to be critical. Much PRA training now gives this priority over the methods. The same applies if farmers are to be enabled better to do their own experimentation and analysis. Thus Lightfoot et al (1994:23) write of ensuring that all members of a team "are in listening mode", and urge: "Remember that it is important to hand over the drawing instrument to the farmer as soon as possible", so that it is the farmer who diagrams, and not the outsider.

These issues were explored in a South-South International Workshop convened in South India in July 1996 by two NGOs - ActionAid, and SPEECH. The report (Kumar 1996) entitled The ABC of PRA: Attitude and Behaviour Change lists many precepts under the two headings of offsetting biases and self-critical awareness. These include how to do the following:

ensure participation of shy and submissive people
be sensitive
be humble
be nice
create mutual trust
be transparent
learn and share together
learn not to interrupt
hand over the stick
be an active listener
avoid leading questions
respect innovation
learn to unlearn
learn not to be judgmental

with an average of nine suggestions under each heading.

Perhaps the most difficult lessons for dominant, energetic, enthusiastic and talkative outsiders are:

* learning not to put forward one's own ideas. This runs counter to the transfer-of-technology ideology, and so presents big problems. Yet it is essential at first if "lowers" (poor farmers, women...) are to gain confidence and feel free and able to express their own realities and conduct their own analysis.

* learning not to criticise. Often there are practices which appear wrong. The moment these are criticised, the outsider can be seen as a threat or as a person to be deferred to, inhibiting local people from putting forward their own ideas.

* learning to keep quiet and not interrupt. Some uppers habitually interrupt lowers, putting them even further down. Perhaps the hardest lesson of all is learning to keep quiet. Interruptions of diagramming or of discussions often sabotage a process, and direct attention away from the subject, making participants more conscious of the presence of an outsider.

* relaxing, not rushing. A pervasive defect of uppers' behaviour is being in a hurry. It goes with being important. Field visits are endemically vulnerable to being late and rushing. A relaxed approach with plenty of time makes the difference. (How often good things happen when a vehicle breaks down, an unanticipated night stop is made, and there is suddenly informality and plenty of time, if the visitor has the wit to seize the opportunity)

* developing rapport. The converse of rushing is taking time to gain rapport, being interested, being human, and behaving in the many small ways that make for good relationships.

A principle running through these injunctions is that of putting the first (the upper) last, so that the last (the lower) can be first. When there are initially sharp imbalances in power, prestige, and status, as in many scientist - resource-poor farmer relationships, the upper has to go to special lengths to achieve an equal and mutual sharing. Visual methods provide one means. Farmers can be empowered by making their own model, map or diagram, expressing and analysing their reality. A farm map or model can provide a focus, agenda and vehicle for farmers and researchers to exchange technical ideas about how new flows and new enterprises might be integrated into ongoing farming systems, and how degraded natural resources might be rehabilitated (Lightfoot et al (1994:23). Matrix scoring of crop varieties (Drinkwater 1993; Manoharan et al 1993) is another powerful method which can astonish both scientists and farmers with the depth and detail of farmers' comparative knowledge.

Nor is this a zero sum game in which the scientist loses so that the farmer can gain. Power is not a commodity, despite the language of "losing" and "surrendering" power, as though it

were. Some agricultural scientists, if a minority, have always found it immensely interesting and exciting to learn from and with farmers. The new visual methods make good experiences more accessible. Often all that is needed now is the behaviour and attitudes to go with them.

Practical Implications

Four practical implications stand out:

- * for personal roles and behaviour: for scientists and extensionists to become less teachers and transferers of technology, and much more facilitators and providers of support to farmers, enabling them to do their own analysis and experimentation, and finding out and searching for what they need.
- * for professional methods: for participatory methods, including visual diagrams and maps, to be adopted and further developed
- * for institutional change: for participatory procedures, values and behaviours to become part of the culture of research and extension organisations
- * for teaching and training: for teaching and training themselves to change from didactic to participatory modes, so that those taught or trained can then themselves reproduce the participatory mode of relating and sharing

Potential

The potential from these changes appears vast. It is for processes which would transform and focus agricultural research to fit the multiple local priorities of CDR and other farmers with complex and diverse systems. These changes could, perhaps, lead to the realisation of much of the latent potential of the third agriculture, as well as some of that of green revolution and industrial agriculture as those change towards more sustainable forms.

The resistances are many. The rigidities and inertias of educational systems, the hierarchies of research and extension bureaucracies, the dominant mode and mental set of the transfer of technology ("we know, they are ignorant") model, the personal self-respect of many who are insecure or who have huge investments of ego in the status gained through their education, and reward systems and institutional cultures which penalise participation and work with farmers - these are among the obstacles.

Agricultural science is not alone in facing these obstacles and opportunities. There is a wider and deeper shift towards participation, towards multiple realities, towards decentralisation and diversity, which resonates with what has been outlined here. Management literature (e.g. Peters 1987; Handy 1989; Senge 1990) stresses the importance of flexible interaction between groups and levels in order to cope with complex and dynamic conditions. For agricultural science, a growing focus on complex and diverse farming systems implies more interdisciplinary collaboration on research stations and in laboratories for which behaviour and attitudes are again critical.

If good agricultural science is that which truly serves resource-poor farmers, women and the marginalised, then scientists' behaviour and attitudes matter. An authoritarian and dominating scientist is a bad scientist. A democratic and sensitive scientist, who respects, listens to, and learns from, small and poor farmers, who know how to keep quiet and how to hand over the stick, is a good scientist. Good behaviour and attitudes are a part of good agricultural science.

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